REMARKS

Claims 1-46 were rejected in the above-identified Office Action ("Action"). Applicants disagree with the rejection of the claims and seeks reconsideration thereof.

Applicants cancel claims 10-12, 32-33, 37, 41, and 44-46. Applicants amend claims 1, 3, 6-9, 13-21, 24-27, 29, 33-36, 38-40, and 42-43 and submit that no new matter is added herein. Amendments to the claims to replace the terms "non-volatile state" and "volatile state" with descriptions thereof are supported at least at claim 32. Also, amendments to the claims to replace the terms "modified volatile state", "exclusive volatile state", and "shared volatile state" are supported at least by claim 33. Replacement of "non-volatile status", "volatile status" "modified volatile status", "exclusive volatile status", and "shared volatile status" are likewise supported. Although some claims only mention "non-volatile state" or "volatile state", Applicant's have attempted consistently replace "non-volatile state" with "first state"; and to replace "volatile state" with "second state" throughout the claims to avoid confusion.

Other amendments to independent claims 1, 9, 13, 17 and 26 to require that cache lines have at least one segment in a modified, exclusive, or shared second state, and a second different segment in a different second state are supported at least at paragraph 14, 20-23, 31-33 and FIG. 2 and 4 of the application.

I.   Claim Rejections – 35 U.S.C. §112, first paragraph

In the outstanding Action, the Examiner rejects claims 1-46 under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. Specifically, the Examiner alleges the terms "volatile" and "non-volatile" have been used extensively in the specification without defining the meaning of the terms within the scope of the invention. The examiner states these terms are already associated with memory devices within the memory arts and cannot be used appropriately as claimed. Applicants respectfully traverse the rejection for at least the following reasons.

Although Applicants disagree, Applicants have amended the claims to replace those terms and added descriptions thereof.

For the foregoing reasons, Applicants respectfully request withdrawal of the rejection of the pending claims under 35 U.S.C. §112, first paragraph.

III.   Claim Rejections – 35 U.S.C. §112, second paragraph

In the outstanding Action, the Examiner rejects claims 1-46 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicants regard as the invention. Specifically, the Examiner alleges the claim language uses the terms "volatile" and "non-volatile" in conjunction with cache lines and cache line segments without adequately providing meanings within the specification for this use of the terms. The Examiner also alleges that the claim language uses the following terms "modified volatile", "exclusive volatile" and "shared volatile" while the specification fails to clearly redefine the terminology.

As previously discussed, although Applicants disagree, Applicants have replaced those terms and added descriptions thereof. Accordingly, Applicants respectfully request withdrawal of the rejection of the pending claims under 35 U.S.C. §112, second paragraph.

II.   Claim Rejections – 35 U.S.C. §102

Claims 1-46 are rejected under 35 U.S.C. §102(b) as being anticipated over U.S. Patent No. 5,822,763 issued to Baylor et al. (Baylor). It is axiomatic that to be anticipated every limitation of a claim must be disclosed in a single reference.

Applicants respectfully disagree with the rejection above and submit that independent claim 1 is patentable over the cited reference for at least the reason that the reference does not disclose maintaining <u>a first segment of a cache line in one of a first state</u> that requires that a modification to a segment of a cache line cause a notification of the modification to be sent; and sending at least the first segment while maintaining <u>a second segment of the cache line in a</u>

second state that requires that a modification to a segment of a cache line does not cause a notification of the modification to be sent, as required by amended claim 1.

Baylor describes that when a processor attempts to over-write a word in a cache, a write request signal is sent to a global directory, and each other processor whose cache serves a copy of the line is notified of the request, so that only after each other processor has responded with an acknowledgment can the first processor proceed with the write (see Abstract and col. 2-6). However, as compared to Baylor, claim 1 requires some segments that when modified require notification to other processors, as well as other segments that can be modified without notification to other processors. In contrast, Baylor only teaches states of an entire cache line, but does not teach states of segments of cache lines (see col. 2, line 21 to col. 4, line 57, col. 5, lines 42-43 and FIG. 1). Moreover, Baylor teaches only cache states that require notification to other processors (see col. 6, line 51 to col. 7, line 43 and FIG. 3).

In addition, by requiring a first segment of a cache line in one of the first state that requires notification of the modification be sent a second segment of the cache line in a second state that does not cause a notification of the modification to be sent, embodiments described in the specification, without limitation thereto, may provide benefits of: (1) operating cache memory more efficiently while maintaining cache coherency by allowing segments of the cache line to be modified without notification to other processors or devices (see paragraph 20 of the application); (2) allowing restrictions on the size or placement of segments to even further improve performance (see paragraph 23 of the application); and (3) allowing an owning processor to modify a volatile segment any number of times without taking any special action to maintain coherence (see paragraph 29 of the application). Thus for claim 1, some segments of the cache line may be in a first state, requiring any modifications to that segment result in notification of the change to other processors that may or may not hold that line in their caches; as well as some segments in a second state, so that these segments may be modified without notification to other processor devices that may or may not hold that cache line. However, Baylor neither describes nor enables the above-noted benefits.

An argument analogous to the one above for claim 1 overcoming <u>Baylor</u> applies to independent claim 13 as well.

Similarly, Applicants respectfully disagree with the rejection above and submit that independent claims 9, 17, 21, 26, and 29 are patentable over the cited reference for at least the reason that the reference does not disclose a cache line having one of a modified volatile, exclusive volatile, and shared volatile state, as required by those claims as amended. An argument analogous to the one above for claim 1 applies here as well.

Other dependent claims are submitted as being patentable for at least the reasons provided above in support of their independent base claim, as well as the additional limitations of each dependent claim.

For the foregoing reasons, Applicants respectfully request withdrawal of the rejection of the pending claims under 35 U.S.C. §102.
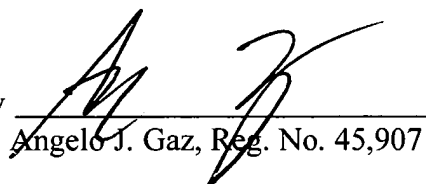
CONCLUSION

In view of the foregoing, it is believed that all claims now pending are now in condition for allowance and such action is earnestly solicited at the earliest possible date. If there are any additional fees due in connection with the filing of this response, please charge those fees to our Deposit Account No. 02-2666. Questions regarding this matter should be directed to the undersigned at (310) 207-3800.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP
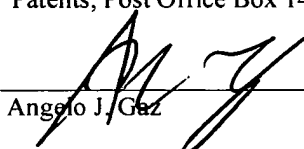
Dated: June 17, 2008.

By _____
Angelo J. Gaz, Reg. No. 45,907

1279 Oakmead Parkway
Sunnyvale, California 94085-4040
Telephone (310) 207-3800
Facsimile (408) 7208383